

Solid Waste Committee Meeting

The meeting will begin shortly



Please mute audio when not speaking.



This session will be recorded and made available on the SWC website.

ARLINGTON

VIRGINIA



Solid Waste Infrastructure

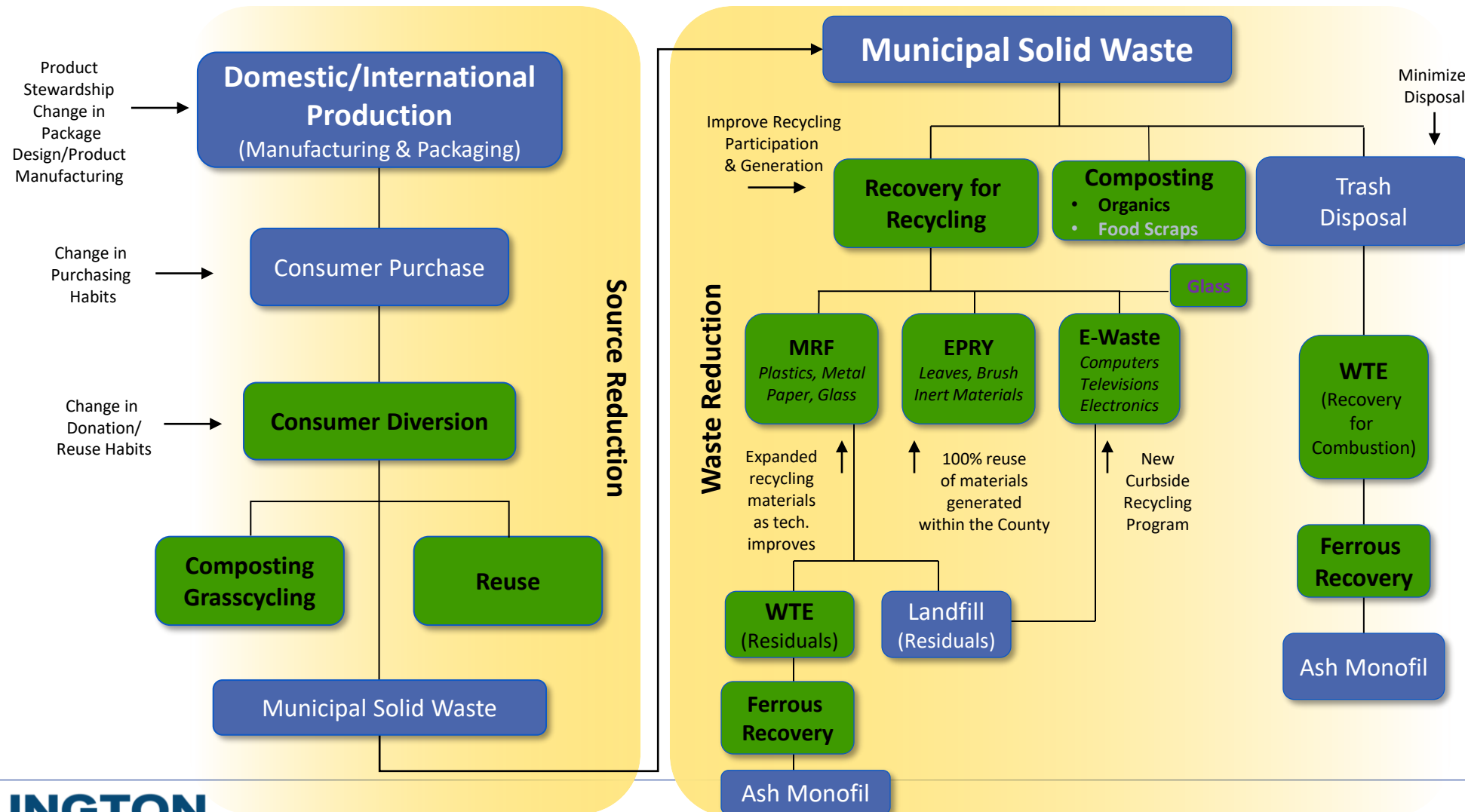
Facilities Overview

March 17, 2022



ARLINGTON
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Solid Waste Management System

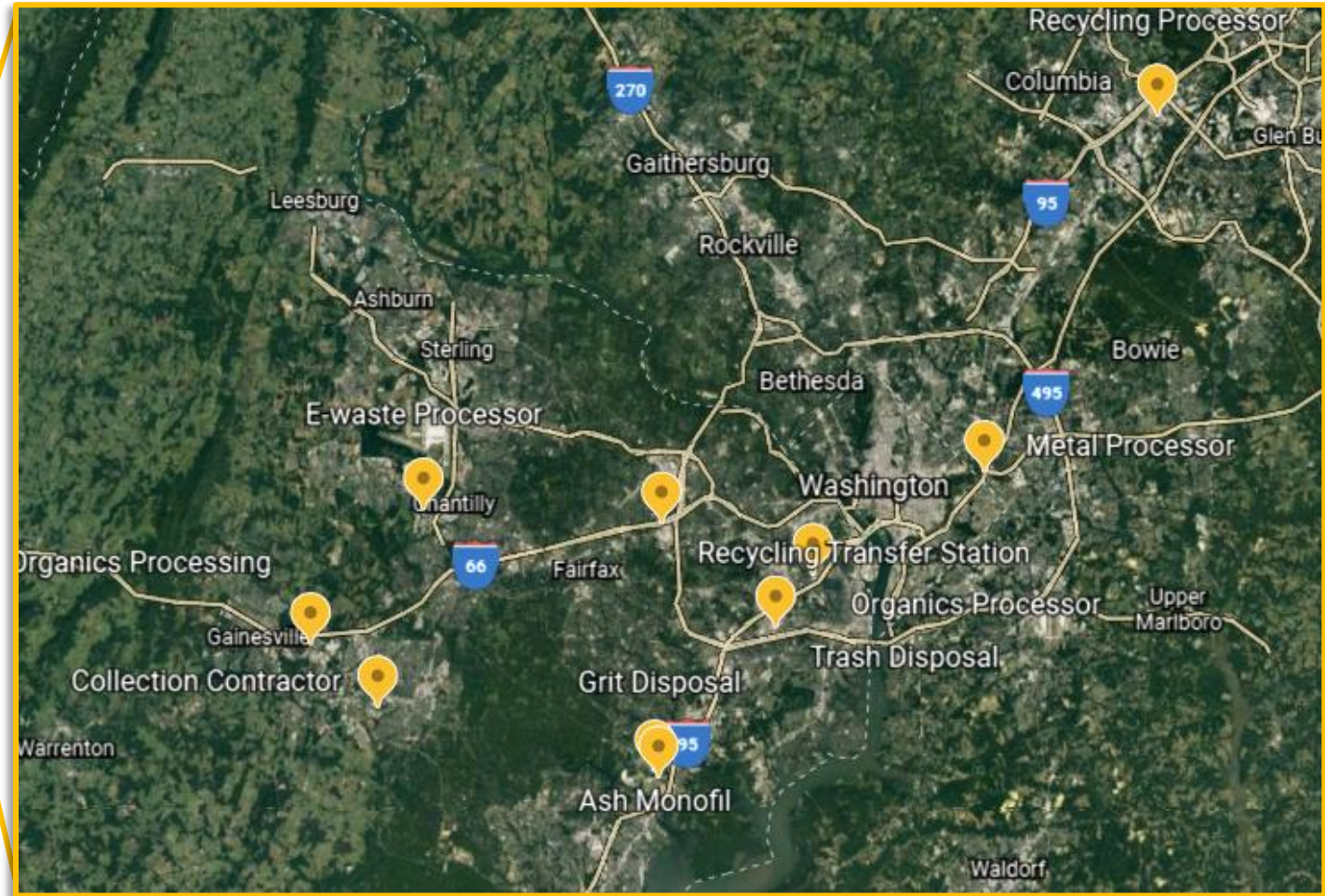
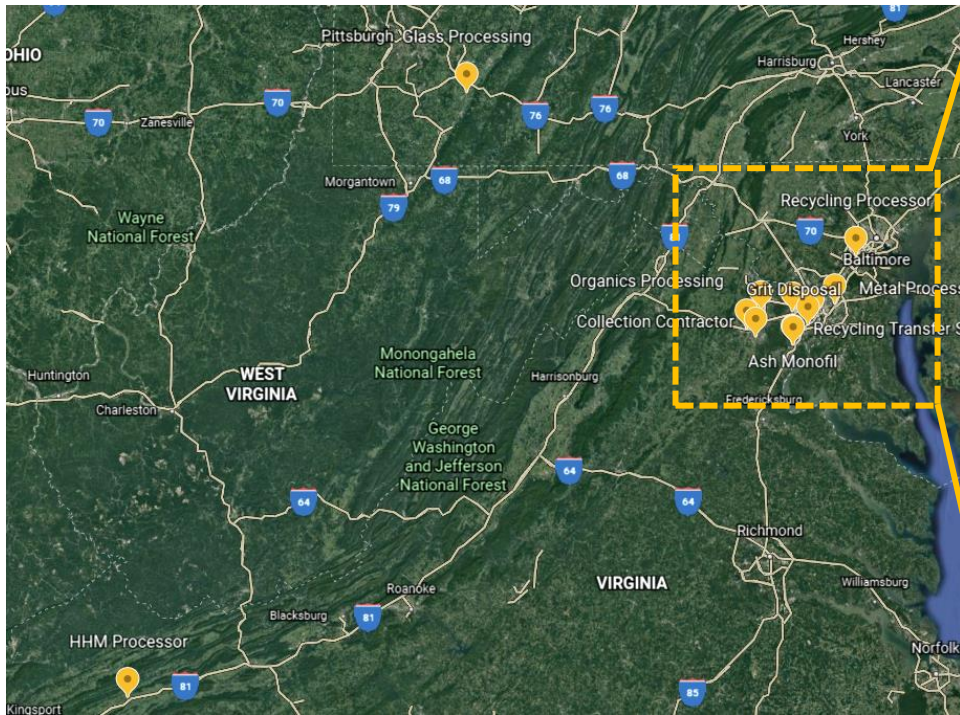


Agenda

- Review Contractor Facilities
 - Facility Locations
 - Regional Processing Capacity
 - Covanta
 - Ash Monofil
 - MRF/Transfer
 - Food Scraps/Yard Waste
 - E-waste
 - Household Hazardous Materials (HHM)
 - Metal
 - Glass
- Contract Dates/Impacts
- Review County Facilities
 - Earth Products Recycling Yard
 - Recycling Drop-off Sites
 - Recycling Interpretive Center
 - Glass Drop-off Sites

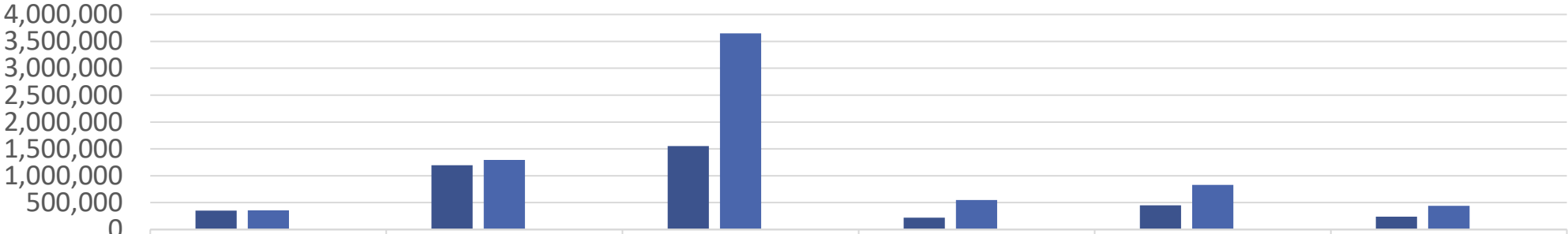
Contractor Facilities

Facility Locations



Regional Capacity to Process Waste

Waste Received vs Annual Permitted Capacity of Facilities used by Northern Virginia and District of Columbia
2020



	Covanta Alexandria Arlington Limited Liability Co	Covanta Fairfax Limited Liability Company	King George Landfill Incorporated	Loudoun County Solid Waste Management Facility	Prince William County Sanitary Landfill	Rappahannock Regional Solid Waste Management Board
■ Waste Received	351,482	1,195,606	1,549,910	218,719	451,511	236,230
■ Permitted Capacity	355,875	1,292,100	3,650,000	547,500	830,375	438,000
■ Percent Permitted	98.80%	92.50%	42.50%	39.90%	54.40%	53.90%

Covanta Waste-to-Energy (WTE)



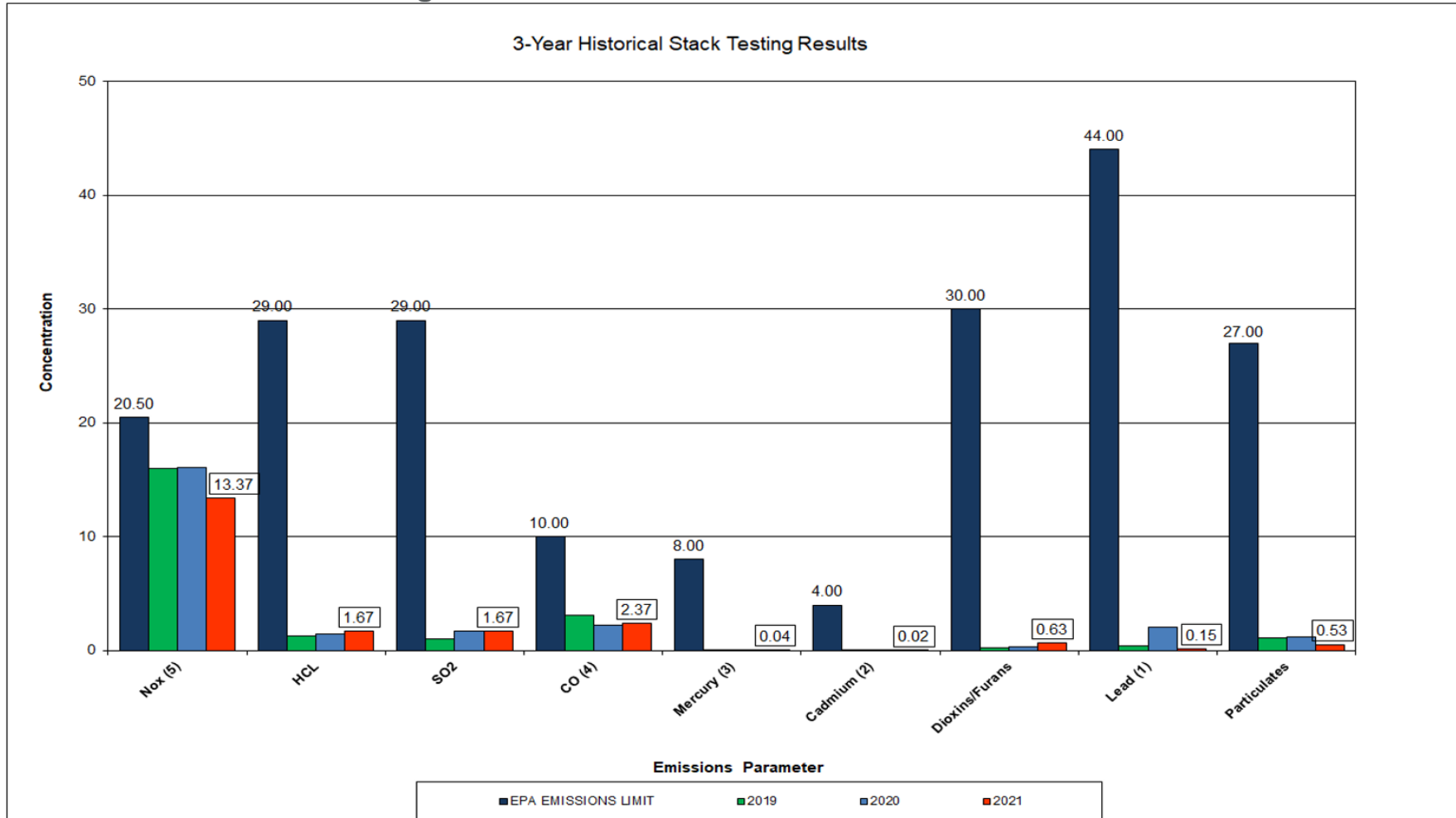
- Alexandria, VA
- Arlington disposal rates:
 - \$46.67/Ton Waste Tip Fee
 - \$0/Ton Waste Tip Fee (2025)
 - Annual Jurisdiction bandwidth 45,000-65,000 tons (~20,000 ton range)
 - 31,388 (CY20)
 - 29,557 tons from residential
 - 1,809 tons County/APS operations
- Covanta Facility Agreement Expires (2038)
 - Operational facility returned to Arlington/Alexandria.
 - Usage after 2038 to be determined

Covanta WTE Alexandria

- Emissions and pollution reduction
 - **99.9 percent** of emissions composed of water vapor, nitrogen, oxygen, and carbon dioxide.
 - Emissions are controlled by good combustion practices, use of gas scrubbers and fabric filter baghouses. Ammonia injection and activated carbon systems are also used to control nitrogen oxides and mercury emissions.
 - NOx scrubber system installed on Boilers 1 & 2 in November 2019. Boiler 3 retrofit scheduled for FY22.
 - Key emissions variables are continuously monitored with state-of-the-art emissions monitoring equipment.
 - 1 ton of waste reduces lifecycle emissions by 0.9 tons of net CO₂e compared to landfilling.
- Volume reduction
 - Ash generated ranges from 20+ percent (by weight) of the MSW processed.
 - Annually recover **11,600 tons** of metal from ash, enough to build **10,000 cars**.
- Electricity generation
 - Produces **22 megawatts** of electricity a year, equivalent to **16,000 homes**.

Covanta Emissions

3-Year Historical Stack Testing Results



Note (1): Lead emissions have been decreased by a factor of 10 for trending purposes
 Note (2): Mercury emissions have been decreased by a factor of 10 for trending purposes
 Note (3): CO emissions have been decreased by a factor of 10 for trending purposes
 Note (4): NOx emissions have been decreased by a factor of 10 for trending purposes

Ash Monofil



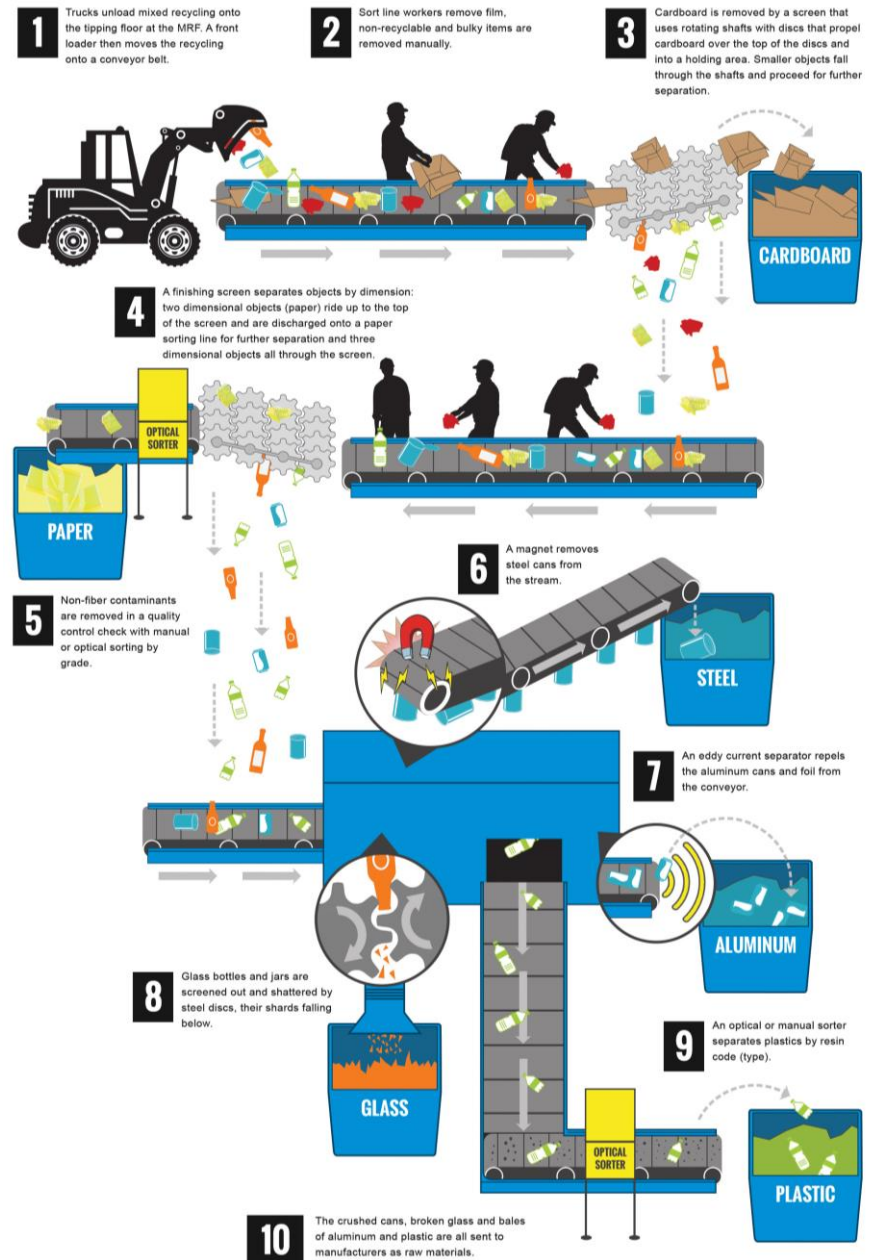
- Fairfax County Ash Monofil
 - I-95 Landfill Complex
 - I-95 Landfill Committee (Fairfax, Arlington, Alexandria, D.C.) 1981 MOU. Original users of the Lorton Landfill Complex
 - Fairfax took over operation of Landfill from the District of Columbia in 1982
 - In 1988 permit amended to establish an incinerator ash disposal facility
 - MSW landfill cap completed in 2008
 - Currently, the Alexandria/Arlington Covanta WTE facility takes ash here

MRF Operations

- Materials sorted and baled
- All commodities are sold to domestic processors except paper which has both domestic and international customers



Source: agecko



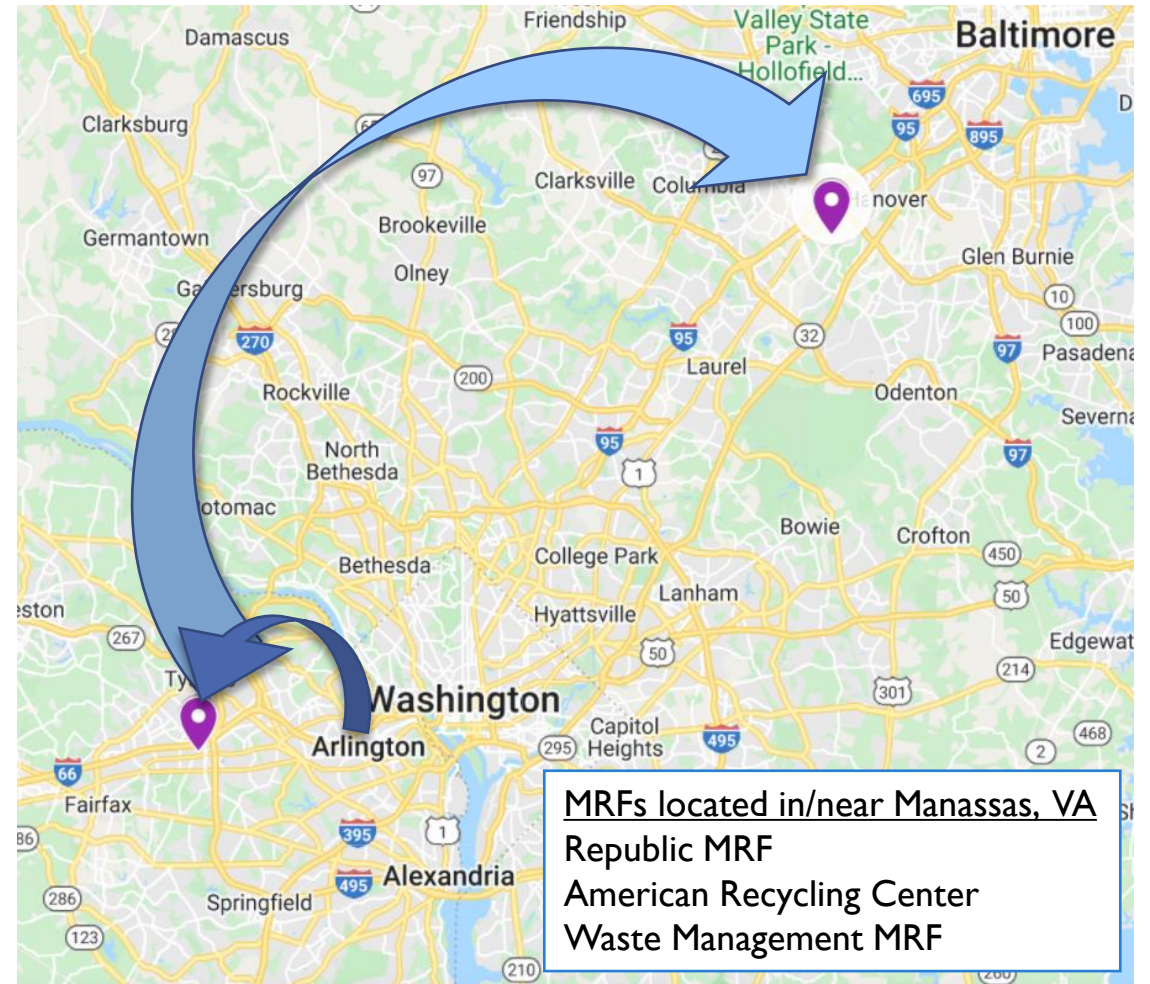
Source: Advanced Disposal

MRF/Transfer Stations

- WM Merrifield Transfer Station
 - Merrifield, VA
- WM Recycle America MRF
 - Elkridge, MD

Regional Capacity

- 3 MRFs located within Northern Virginia (NOVA).
 - All privately owned.
 - NOVA Jurisdictions are totally reliant on the private sector for recyclables processing and sale.
- 2 Transfer stations in NOVA



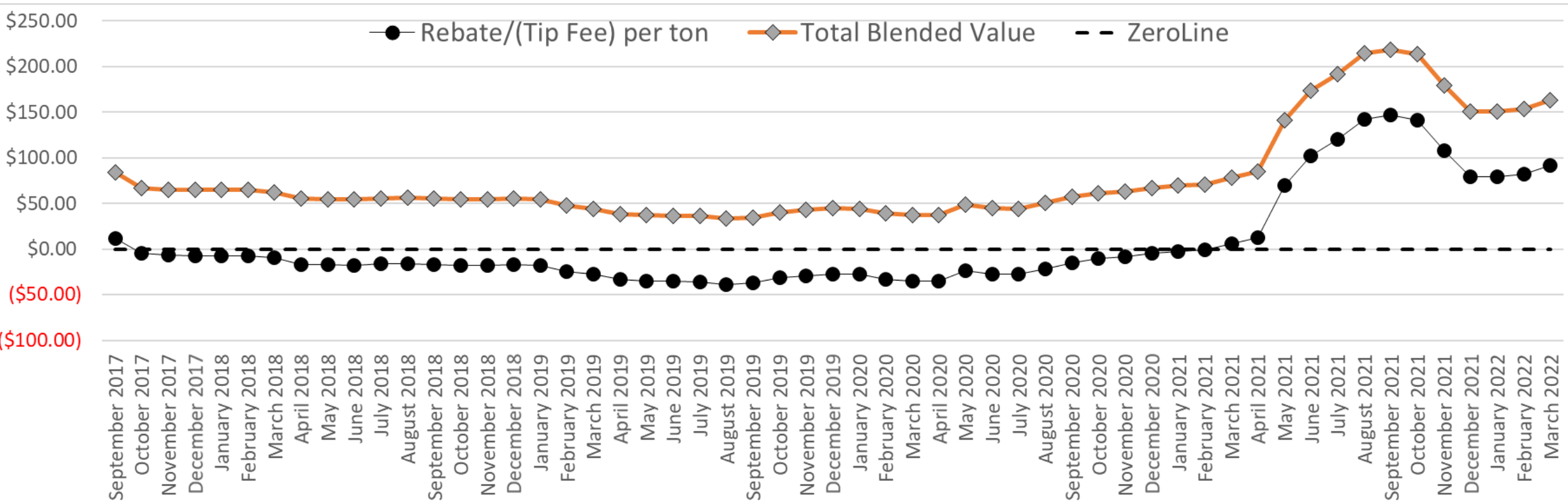
MRF Economics

- 11,233 tons (CY20)
 - 10,400 tons from Residential
 - 833 tons from Drop-off Centers

- \$72 processing fee
 - Offset by blended value rebate
 - March 2022 – County received \$90.84

Month	Year	Fiscal Year	Market Commodity	Value	Unit	Value per Ton	% of Index	Composition	Blended Value
March	2022	2022	Steel Cans	15.00	dollars/ton	\$15.00	85%	1%	\$0.19
March	2022	2022	Mixed Plastic	40.00	cents/pound	\$800.00	85%	10%	\$68.95
March	2022	2022	Mixed Glass	60.00	dollars/ton	\$60.00	0%	10%	\$0.00
March	2022	2022	Old Corrugated Containers	155.00	dollars/ton	\$155.00	85%	26%	\$33.93
March	2022	2022	Old News Print	125.00	dollars/ton	\$125.00	85%	3%	\$3.11
March	2022	2022	Mixed Paper	75.00	dollars/ton	\$75.00	85%	38%	\$24.28
March	2022	2022	Aluminum Cans	\$127.00	cents/pound	\$2,540.00	85%	2%	\$32.39
*Processing Fee \$72.00 / Total Blended Value									\$162.84

Recycling Values Since Sept 2017



Food Scraps/Organics

- Freestate Farms/Prince William County
 - Manassas, VA
 - Public-Private Partnership
- Food scraps and yard waste
 - 7,550 tons composted
 - \$38/ton fee
- Aerated bunkers
- AC purchases compost which is made available to residents



Source: Freestate Farms

E-waste

- Securis
 - Chantilly, VA
- R2 certified facility
 - Environmental standard for e-waste.
 - Materials not shipped overseas.
- 110,187 lbs e-waste collected
- Fee structure:
 - County receives 4 cents/pound for mixed recyclables.
 - Higher value for functional county equipment
 - CRT (TV/monitors) fee
 - Fee is passed onto residents



Source: Securis

Household Hazardous Materials

Final Disposition of HHM Types and Electronics
Managed Through the HHM Program in FY21

Final Disposition of Collected Material	HHM Types and Electronics Quantities Collected (lbs)					TOTAL
	Corrosive	Ignitable	Reactive	Toxic	Electronics	
Recycle	16,100		2,480	132,738	110,187	261,505
Resource Recovery		5,453	590			6,043
Energy Recovery		62,550				62,550
Treatment	22,900					22,900
Incineration		6,100	2,625	41,550		50,275
Stabilization / Landfill			4,630	106,100		110,730
Total	39,000	74,103	10,325	280,388	110,187	514,003
% Recycled	41.30%	7.40%	29.70%	47.30%	100%	52.10%

- MXI Environmental Services
 - Abingdon, VA
- 403,816 lbs HHM collected
- Disposal fee varies by material/size
- 52.1% recycling rate for HHM
 - Remainder is safely disposed of via incineration or hazardous waste landfill
- HHM Program Cost FY21 \$347,170
- Proper location to dispose of lithium batteries

HHM Cost Sample

HHM Types Collected		Pricing Unit (container, lb, gal, ft, each)	Price per Unit (lb, gal, ft, each)	Price per Container Size							
				55-gal	30-gal	20-gal	15-gal	5-gal	CF(box)/ CW (pallet)	Tote (275 gals)	
Aerosols (flammable/toxic)		container	each	178.00	N/A	N/A	N/A	N/A	N/A	N/A	
Asbestos		container	each	195.00	175.00	150.00	140.00	75.00	250.00	N/A	
Cleaners (assorted, non-reg)		container	each	198.00	N/A	N/A	N/A	N/A	225.00	N/A	
Compressed gases (misc)				Case by case						N/A	N/A
Corrosive liquids	Acid			175.00	145.00	125.00	95.00	N/A	N/A	N/A	
	Basic			175.00	145.00	125.00	95.00	N/A	N/A	N/A	
Corrosive solids (acidic/basic)				125.00	115.00	95.00	75.00	N/A	N/A	N/A	
Fire extinguishers		each	each	No charge (scenario pricing – original ITB)						N/A	N/A
Flammable lab pack		container	each	151.00	125.00	115.00	95.00	75.00	N/A	N/A	
Flammable liquids (bulk, slop)	< 1/3 sludge	container	each	151.00	N/A	N/A	N/A	N/A	N/A	N/A	
	> 1/3 sludge	container	each	151.00	N/A	N/A	N/A	N/A	N/A	N/A	
Flammable solids (inorg/org)		container	each	367.00	250.00	200.00	175.00	100.00	N/A	N/A	
Fluorescent lamps	CFLs, misc shaped	container	each	178.00	N/A	N/A	N/A	N/A	N/A	N/A	
	Crushed	container	each	250.00	N/A	N/A	N/A	N/A	N/A	N/A	
	Tubes	pound	each	0.50 / pound						N/A	N/A
Household batteries	Alkaline	container	each	200.00	150.00	125.00	95.00	75.00	N/A	N/A	
	Lead-acid	each	each	No charge						N/A	N/A
	Lithium / Li-ion	container	each	N/A	N/A	N/A	95.00	75.00	N/A	N/A	
	Ni-cad / NiMH	container	each	250.00	195.00	175.00	95.00	75.00	N/A	N/A	

How does this compare to MSW
Covanta: \$46.67/ton
HHM Cleaners: ~\$815/ton

Scrap Metal

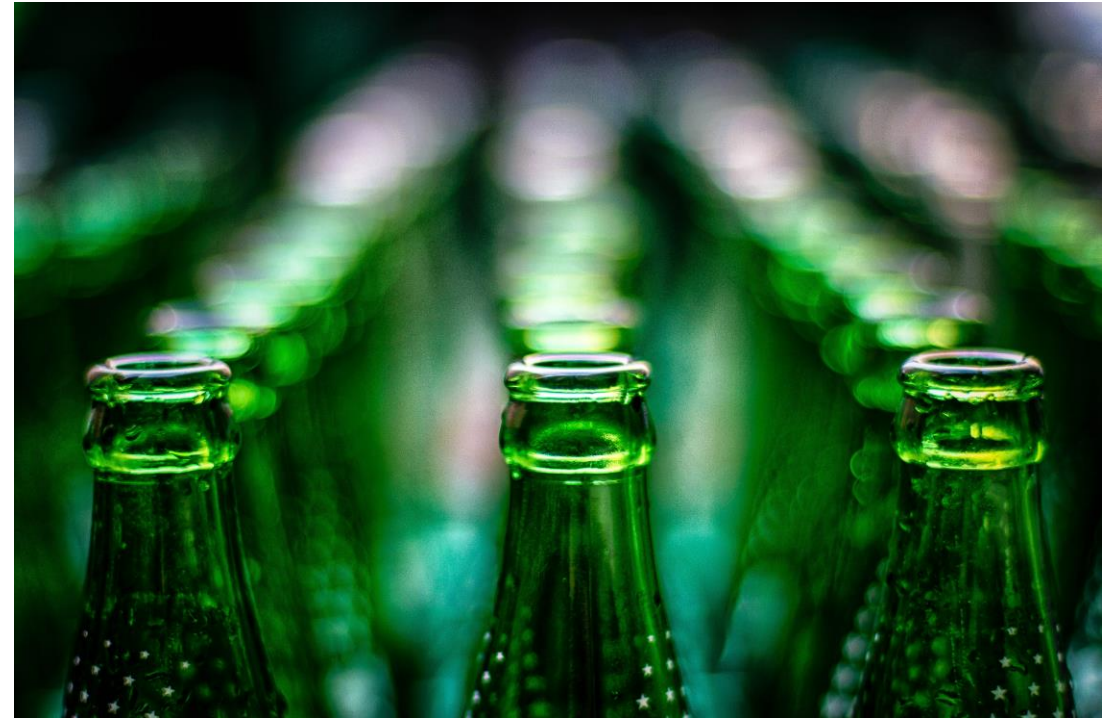
- Jos. Smith and Sons
 - Capitol Heights, MD
- County receives rebate 50% of market value.
 - \$142.63 per ton (Feb 2022)
- 235.63 tons (CY20)



Source: Joseph Smith and Sons

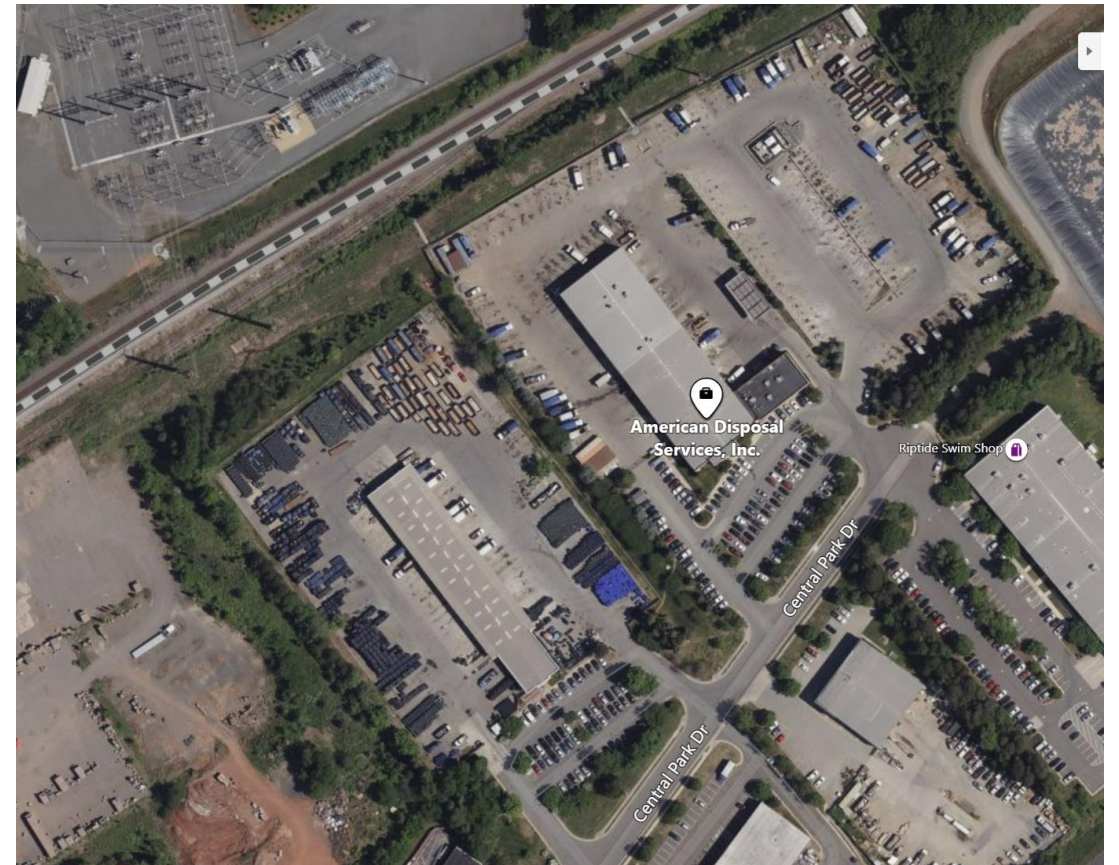
Glass

- CAP Glass
 - Mount Pleasant, PA
- 1,740.5 tons processed (CY20)
 - County paid \$15/ton, fee includes hauling
- Centralized location at Trades Center for pick-up
- Contractor transports glass back to facility



ADS Facility

- Manassas, VA
- CNG truck fleet supports Arlington
- E-waste collected curbside is managed by R2 certified company
- Metal collected curbside is taken to Joseph Smith and Sons
- Freon evacuation is done at this facility for refrigerators, freezers, AC units, etc.
- Storage location for trash, recycling and organics carts



Contract Renewal Dates and Impacts

- ADS
 - Contract expires in 2023 (with 2 – 1yr renewal options remaining)
 - Terms potentially subject to change in 2025 (i.e. unlimited bulk collection)
- WM Recycle America MRF
 - Contract expires in 2023
 - Pricing changes (material composition changes)
- Covanta
 - Facility agreement expires in 2038

County Facilities

Earth Products Recycling Yard (<4 acres)



- Located at the Trades Center
- 400 trees planted to offset carbon emissions
- Equipment
 - Rock Crusher (Diesel)
 - Dirt Shaker (Diesel)
 - Tub Grinder (Diesel)
 - Trommel Screen (Diesel)
 - In Vessel Composter (Electric)
- Electrification efforts
 - FY22- Solar Array to power battery powered tools (blowers, lawn mowers, weed whackers, etc.)
 - FY23- Rock Crusher and Dirt Shaker converting to electric

Earth Products Recycling Yard (<4 acres)



- Operations
 - Dirt Shaking/Screening
 - Concrete/Asphalt Crushing
 - Wood and Leaf Grinding
 - Food Scraps Composting
 - Commodity Storage
- Production/Manufacturing
 - Leaf & Wood Mulch
 - Aggregates (21a, 57 stone)
 - Topsoil (Soil, Organics, Compost)
- Other Services
 - Food Scraps Drop-off
 - Inert Materials Drop-off
 - Metal/E-waste Drop-off
 - Shredding Services
 - Cart Washing

Recycling Drop-offs

- Locations:
 - Quincy Park Recycling Drop-off
 - Trades Center Recycling Drop-off
- Materials Accepted:
 - Mixed Materials
 - Paper
 - Plastic containers
 - Metal cans
 - Cardboard
 - Glass jars & bottles



Glass Drop-off

- County no longer accepts glass in the residential recycling carts.
- Collected via 5 drop off points within the county.
 - Quincy Park Recycling Drop-off
 - Trades Center Recycling Drop-off
 - Aurora Hills Community Center (Glass Only)
 - Lee Community Center(Glass Only)
 - Madison Community Center(Glass Only)
- Glass is aggregated at the Trades Center for contractor pickup.
- Every resident within 2.25 miles of a glass drop-off point



HHM & E-waste



- Water Pollution Control Plant
- Available to residents by appointment on weekdays.
- Saturday open drop-off.
- FY21 data:
 - 8,622 residents served
 - 154 tons of HHM collected
 - 41 tons of e-waste collected
- Swap Shop
 - Growth opportunity for HHM recycling.
- Semi-Annual ECARE events (various locations)

Recycling Interpretive Park



- Park made using products made in the EPRV and other recycled material
 - Pathways
 - Concrete
 - Asphalt
 - Berms and plantings
 - Leaf
 - Wood
 - Soil
 - Plastic benches - recycled plastic
 - Walls made from reuse of old sidewalks
 - Aluminum edging from recycled aluminum

Questions?